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An Economic Analysis of an Allotment-Based Marketing Order for the Hop Industry

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Foreword

The hop industry is debating the merits of instituting a marketing order to govern the sale of hops produced by growers in Washington, Oregon, California, and Idaho. While well intentioned and promoted as a form of industry "self-help," allotment programs are known to cause substantial misallocation of resources and impose burdensome costs that are inequitably distributed throughout the industry and to consumers. Any short-term gains that might accrue to some producers will be offset by higher costs to others, and the competitive advantages enjoyed by the domestic hop industry will be put at substantial risk. In short, the appeal of a marketing order to quell the pressures currently faced by some producers must be balanced against the severe harm that such programs are known to inflict on entire industries. Economists at Sparks Companies, Inc. prepared the analysis that follows on behalf of hop producers opposed to the marketing order.

This analysis was originally submitted to USDA during the comment period for the proposed marketing order in January 2003, and was subsequently revised and updated in October 2003 to reflect new information and changes to the proposed marketing order leading up to an Administrative Hearing

October 2003

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Background

The Hop Marketing Order Proponent Committee (the Proponents) submitted to USDA a proposal to establish a marketing order governing the sale of hops by growers in the Pacific Northwest and California. The stated objective is to bring stability to the U.S. hop industry by balancing supplies with market demand, while also improving grower prices and returns.

If enacted, provisions included in the marketing order would:

- Establish base allotments for each grower based on his or her production history from 1997 to 2002.
- Establish a "saleable quantity" of Alpha Acid allocated to each base allotment, restricting by law the maximum amount each grower may market each marketing year.
- Severely restrict entry of new producers by allowing only up to a 1 percent increase in the total allotment base each year, half of which is to be allocated to existing growers.
- Allow the sale, trade, or lease of base allotments among existing growers.

The proponents suggest that low product prices and year-to-year variability in grower returns could be substantially alleviated if a governing body is granted legal authority to restrict the marketing activities of individual growers, ostensibly to "bring supply in line with estimated demand to satisfy the market's needs." However, history and economic theory make clear that the provisions of this marketing order would be detrimental to the domestic hop industry by distorting market signals, sacrificing international competitiveness, and imposing inequitable costs on the most efficient producers. This report illustrates the adverse and unintended consequences expected if the proposed Hop Marketing Order were promulgated.

Allotment Based Marketing Orders: The Theory and Controversy

The enabling legislation for agricultural marketing orders dates to 1937, citing the need to establish "orderly" marketing conditions and assure equitable returns for producers. Presently, most marketing agreements and orders function by establishing grade, quality or package size standards; controlling product disposition into various alternative markets; and/or supporting research and promotion activities. Although the legislation allows for programs that control market sales through producer allotments, this option is rarely applied due to the administrative burden, repressive producer oversight required, and the inequitable transfers of wealth known to occur.

Economists tend to agree that volume controls are among the most pernicious and arbitrary policy mechanisms, resulting in the greatest welfare loss and most significant resource misallocations. Therefore, the few allotment-based orders attempted—including the earlier hops marketing order and the current orders for spearmint oil and (more recently) cranberries—tend to generate widespread controversy. The proposed hop marketing order would be no exception. Economists oppose volume controls on the grounds that economic efficiency is undermined when a "central authority" determines the supply of product in the market rather than competitive forces. Furthermore, consumer interests are clearly undermined by policies that artificially support food ingredient prices.

As to program objectives, while the enabling legislation sounds innocuous in its reference to the need for establishing "orderly" marketing conditions and assuring equitable returns to producers, key terms such as "orderly marketing" are not operationally defined. In practice, producer allotment programs are clearly intended to override existing market and price signals and restrict the optimal behavior of individual producers. And, while widely promoted as an industry-funded "self help" mechanism, the intention is clearly to enhance the welfare of a group of producers at someone else's expense, including consumers and/or other producers.

Controversy associated with the use of market allotments is not new; in fact, the previous hop marketing order was terminated on the grounds that it did not effectuate the declared policy of the enabling legislation. Thus, it is surprising that the proposed new marketing order recommends market controls similar to those found objectionable by an earlier administration.

Termination of the Previous Hop Marketing Order. The previous hop marketing order was terminated on July 1, 1985, following an in-depth review of many federal programs believed to impose undue burden on the economy. Marketing orders were one of 27 regulatory programs targeted for reassessment and possible modification under the Reagan administration's Task Force on Regulatory Relief. Although the very principle of allotment based marketing orders was widely viewed as antithetical to sound economic policy, ultimately the previous marketing order was terminated due to infighting among growers and lawsuits filed against USDA regarding the marketing order provisions. In short, the infighting and lawsuits largely reflect the type of actions expected within a cartel, and such developments will likely return if a new marketing order is established.

The Secretary of Agriculture initiated an economic review of marketing orders in May 1981, specifically identifying volume controls in seven marketing orders (hops, spearmint oil, California-Arizona navel oranges, California-Arizona Valencia oranges, and California-Arizona lemons, walnuts, and filberts) as having significantly contributed to resource misallocation. Of the various types of marketing orders examined, research and promotion programs were viewed as the most beneficial for producers, handlers, and consumers alike, and volume control orders (such as those imposed under the hop marketing order) the most harmful due to their potential for limiting supply, causing

under-investment by industry, and reducing open competition through restricted entry of new producers.

In the spring of 1983, the question of production controls in marketing orders came before the President's Cabinet Council on Food and Agriculture. In a memorandum to the members of the Council, then OMB Director David Stockman noted that the adverse consequences of production restraints are easily predicted by economic theory and supported by empirical evidence. He went on to note that the customary economic devices for smoothing natural variations in output and prices are private storage and futures markets, which because they are voluntary and decentralized, are bound to be more accurate and responsive than federal regulations in balancing supply against anticipated future demand. Furthermore, OMB suggested that the Administration issue a policy statement that season-long marketing volume restrictions be no longer approved by either USDA or OMB.

Although abolishing allotment-based marketing orders outright was deemed too controversial at the time, erupting controversies within the hop industry regarding the objectives and operation of the marketing order could not be ignored. A sharp rise in prices due to European crop failures led growers to plead for more allotments, but the market remained restricted under the fiat of the marketing order. Growers quickly became disenchanted with this albatross around the neck of the industry, and sued for the right to produce in accordance with market signals. Ultimately, the legal and administrative burdens on USDA, combined with the principled opposition to these programs generally, prompted the Reagan Administration to simply terminate the hop marketing order altogether.

Given the controversial history of the previous hop marketing order and the policy principles espoused by the current Administration, it is difficult to imagine how the proposed hop marketing order would not be met with antipathy. Consider the "Lessons learned from 70 years of farm policy" upon which the current Bush Administration's "Farm Policy Principles" are based (from "Food and Agricultural Policy: *Taking Stock for the New Century*" September 2002. Available on the web at http://www.usda.gov/news/pubs/farmpolicy01/fpindex.htm):

- **History has shown that supporting prices is self-defeating.**

  ...Government attempts to hold prices above those determined by commercial markets have simply made matters worse time after time.

- **Supply controls proved unworkable too.**

  ...Perhaps most important of all, limiting our acreage was a signal to our competitors in other countries to expand theirs, and we lost market share that is always difficult to recapture.

- **Stockholding and reserve plans distort markets enormously.**

  ...Isolating commodity stocks from the market when supplies are abundant is attractive for its short-term price stimulus. But, because such stocks eventually must be returned to the market, they limit the recovery of prices in the future.

- **Program benefits invariably prove to be disparate, providing unintended (and unwanted) consequences.**

  ...The rapidly changing farm sector structure produced a wide array of farm sizes and efficiencies. Many farms were low cost and the programs were low cost and the programs were of enormous benefit, enabling them to expand their operations. Others did not receive enough benefits to remain viable and thus were absorbed along the way.

Although these policy principles were not formulated specifically with the proposed hop marketing order in mind, they clearly espouse the danger of market interference as a farm policy tool and emphasize the unintended and inequitable consequences that inevitably result. With these principles in mind, the economic implications of the proposed hop marketing order are analyzed below.

Understanding the Problem: The Proponents View

The arguments provided in favor of the proposed marketing order are based on an implicit assumption that hop producers are incapable of making responsible marketing decisions on their own. Therefore, the proponents suggest that a legal authority be established to dictate to each producer the maximum amount of hops saleable in the market. The intention is to support prices and alleviate price and acreage swings that often characterize this industry.

The marketing order Proponents presented a list of "problem statements" justifying their proposal. They cite market characteristics believed detrimental to the industry and which, purportedly, a marketing order could correct. However, a careful review of these problems shows that the market conditions cited largely reflect structural forces occurring throughout the agricultural sector (i.e. not limited to hops), including improved technology, global competition, and other forces characteristic of competitive markets. These forces are best managed by searching for new opportunities, markets, and cost-saving technologies, not by imposing constraints on growers in an effort to "turn back the clock." The problem statements cited are addressed below in sequence:

Problem 1: Brewers have moved away from long-term contracts toward greater purchase of hops on the spot market.

Response: The proponents assert that the recent decline in use of long-term contracts is evidence of the need for managed supplies by hop producers. The data presented in their proposal shows a sharp decline in the hop industry's "sold ahead" position especially

since about 1999 when 122% of the crop was forward contracted as of March 1, to 66% in 2002. Two points should be noted:

- Between 1992 (long after the previous marketing order was abolished) and 1997, the sold ahead position averaged 89.5% with only modest variability, before jumping to 122% in 1999 (*Hops Growers of America 2001 Statistical Report*). This is hardly evidence that the absence of a marketing order since 1986 is responsible for the very recent decline (2001 and 2002) in contract production. Furthermore, since sold ahead surveys are not mandatory, the figures cited could be subject to misinterpretation, possibly underestimating the true sold ahead position.

- Brewers' willingness to contract ahead reflects the degree to which supply is thought to be inelastic: a highly inelastic supply implies that a brewer could be "caught short" if their needs exceed that which is available on the open market.

Contracts are risk management tools that are invaluable to brewers as well as producers. A reduction in contracted production in recent years is certainly not a nefarious attempt by brewers to transfer additional risk to growers. In fact, it simply reflects abundant supplies, either held in storage or available on the open market from domestic or international sources. The sold ahead position is indeed a market signal—along with current prices—suggesting future price and supply expectations. These market signals are based on all available information at any point in time, and are (as they should be) used by producers and brewers alike in determining future optimal production and marketing decisions.

Implying that a marketing order could increase brewers' use of contracts for future production is at best an attempt to "hold brewers hostage" by limiting supplies available for purchase (creating, essentially, a more inelastic market supply), forcing them to contract ahead greater amounts lest they be caught in a situation where their needs exceed the saleable quantity allowed under a marketing order. However, the possibility of future restricted domestic supplies resulting from actions by the Hop Administrative Committee also adds risk to contracts, especially contracts that extend several years to the future: if the saleable quantity is dramatically reduced, growers might not be able to honor existing or future contracts. Brewers might therefore be *less likely* to enter into contracts, at least until markets adjust and the effects of the marketing order are better understood.

In any case, even if grower prices and sold ahead positions did increase at some point following enactment of a marketing order, the result would certainly also encourage brewers to find other ways to manage supply risk, such as increased purchasing in global markets or vertical integration into hop production. In the long run, domestic hop producers would not be better off than before the marketing order, despite the possibility of an increased use of brewer contracts.

Problem 2: There is no structure currently in place to manage the quantity of hops produced or sold. Asset fixity and the few alternative crops available has been the stimulus for growers to continue producing hops despite poor prices in the hopes that economic recovery is right around the corner. There have not been any price spikes for over a decade and German crop failures, once fairly common (one in every three years or so) are also now a rarity.

Response: In all competitive markets, price expectations guide supply and production decisions. Efforts to "manage" supply to raise or stabilize prices tend to be the domain of monopolists, cartels and centrally planned economies. The adverse implications for economic efficiency, consumer welfare, and industry productivity are well documented and commonly known. Asset fixity is a concern for many industries both in and out of agriculture, and is reflected in risk-adjusted returns and asset valuations. Unfortunately, some producers might be caught in a situation where market returns do not cover total costs—or even variable costs—but nevertheless produce out of hope of a market recovery. This problem is not unique to the hop industry, and over the long run market signals force the higher-cost producers to improve their efficiency, expand to capture economies of scale, or exit the industry altogether. A hop marketing order is unlikely to alleviate these pressures, let alone in an equitable manner.

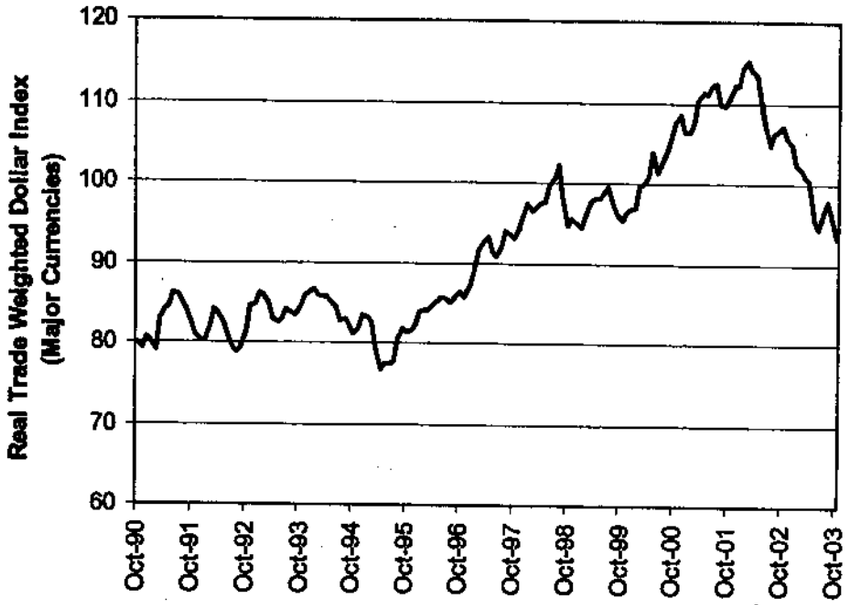
The absence of price spikes resulting from German crop failures is certainly not an issue worthy of concern in a marketing order proposal. These exogenous occurrences cannot be predicted or managed in any way, and US farm policy has never been formulated to consider weather events or crop failures in foreign lands. Furthermore, the absence of German crop failures for over a decade suggests that perhaps these crop failures contributed to the rising hop prices during the 1966-1985 period as much—or more than—the marketing order that was in place.

Problem 3: The strong dollar places American growers at a competitive disadvantage making American hops relatively expensive on the world market. At present, the industry reduces acreage through attrition to compensate for the exchange rate inequities. After several years of losses, the banking community is skeptical and hesitant to finance hop growers. Increasing a farm's efficiency through new varieties or improved technology requires substantial investment. The strength of the dollar combined with the current market conditions brought on by over supply means there is little hope that a grower will receive a return on that investment.

Response: The strong dollar has long been a challenge for export-oriented industries, and it has plagued the entire agricultural sector since at least the mid-1990s. Indeed, the rising value of the dollar is not limited to trade with Germany; it has strengthened against most major currencies since about 1996 through early 2002 (Chart 1). This did increase the relative price of US products on the world market, creating some level of competitive disadvantage. But there are few domestic policy solutions to this concern, and over the long-run marketing allotments would certainly have a counter-productive effect by increasing the price of domestic hops in export markets and further eroding the competitive position of US hop growers.

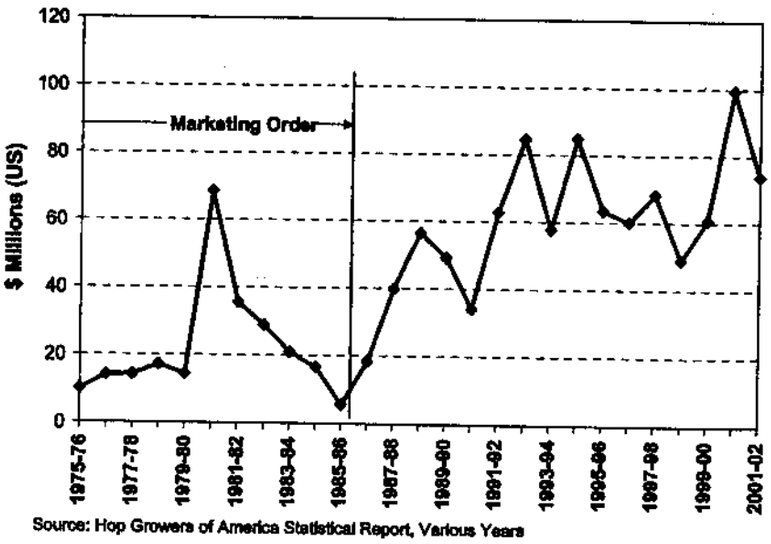
Furthermore, since February 2002, the dollar has lost roughly 20% of its real value against major currencies, which to a very large degree obviates concerns over export competitiveness related to currency rates.

Chart 1. Value of the Dollar Against Major Currencies



Source: Federal Reserve Board

Chart 2. Net Balance of Trade in US Hops



Source: Hop Growers of America Statistical Report, Various Years

In any case, the only effective way for domestic industries to respond to the "competitive disadvantage" imposed by a strong dollar is to encourage productivity and lower costs in order to increase their own competitive position vis-à-vis foreign suppliers. The Proponents note that the United States is the most efficient producer of alpha acid in the world, in many cases showing 50% greater productivity than the average German grower. This production efficiency largely reflects superior growing conditions as well as market forces that have encouraged investment in improved technology and superior varieties in the US. And, this superior production efficiency has rewarded US growers with a positive and upward trending balance of trade in international markets despite the steady rise in the value of the dollar (Chart 2).

The strong trade balance evident in the 1980-82 marketing year was mostly the result of crop failure in competing countries, which sharply reduced supplies worldwide and drove prices higher. But once the market adjusted in subsequent years, the trade balance quickly returned to (or below) pre-1979 levels. It was not until marketing allotments were eliminated in 1986 that the trade balance began to show a strong upward trend, which, despite the increasing value of the dollar, continued in recent years, with the 2000-01 marketing year showing the highest positive trade balance on record. Reducing supplies through a marketing order would certainly erode the recent gains made in international markets, regardless of the value of the dollar.

The dollar's value will continue to fluctuate (possibly even soften) as currency markets respond to changes in the global economy, expectations about future growth, and other world economic developments. A hop marketing order has absolutely no effect on the exchange rate, and could only result in decreased exports and export competitiveness over time.

Problem 4: In the past forward contracts guided the growers' planting decision. Through the Internet and e-mail, contacts worldwide routinely provide valuable information on market demand. Valuable information is regularly reported to growers and arguably growers today are more informed on market conditions than ever before. There is, however, no structure or authority to use this information to manage the marketing of the hops the industry as a whole produces.

Response: Again, the issues raised in this problem statement are not unique to the hop industry. Advances in communications technology have considerably reduced the cost of market information--to near zero in some cases—as news, market reports, weather conditions, and many other types of information are accessible nearly instantaneously anywhere in the world over the internet and wire services. All industry participants are almost certainly more informed on market conditions than ever before, which if anything should reduce the need for a central authority to provide guidance to individual producers. Advances in communications technology have been credited with increasing efficiency and providing greater coordination between supply and demand in nearly all types of agricultural, industrial and service-oriented industries.

There is no "central authority" to use this information to manage the marketing of hops for the entire industry—as there ought not to be. The fundamental basis of a market economy is that individual producers are given full freedom to decide what and how much to produce based on their own analysis and system of beliefs. It is presumptuous for any group or central authority to assume that they alone can accurately predict months in advance what should be produced or sold by the entire industry in such a way that the utility of all industry participants is improved. History has repeatedly shown that attempts at central planning are doomed to failure.

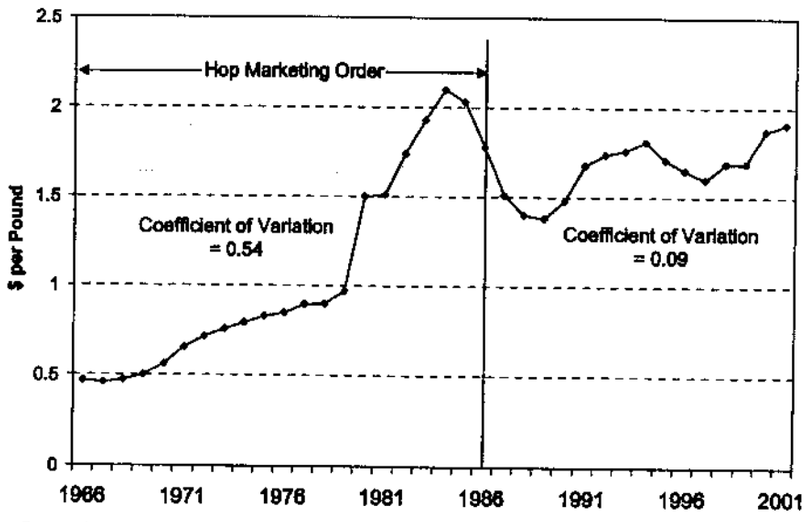
Of course, there can and should be a role for grower organizations in helping producers use the information available to them, but it should be limited to providing market reports and analysis, forums for public discussion, and other methods of helping producers make informed decisions—not in having their decisions made for them and imposed by law.

Did the Previous Marketing Order Achieve its Goal?

The proponents assert that under the previous marketing order, "growers did not get rich, but made a comfortable living," and they point to the steady rise in the price of hops and relatively stable acreage and grower numbers from 1966-1985 as evidence that a new marketing order could improve the economic conditions currently facing the industry. However, whether the previous marketing order benefited the industry as a whole is subject to debate, as is its role in the meteoric rise in prices over this period.

Clearly, the period 1966 to 1985 was characterized by strong markets, rising prices and tremendous growth in revenue to the hop industry, as average US prices rose from less than 47¢/lb in 1966 to over $2.00/lb in 1985 (Chart 3). Economics and the characteristics of the market during this time suggest that prices likely would have risen even without the marketing order.

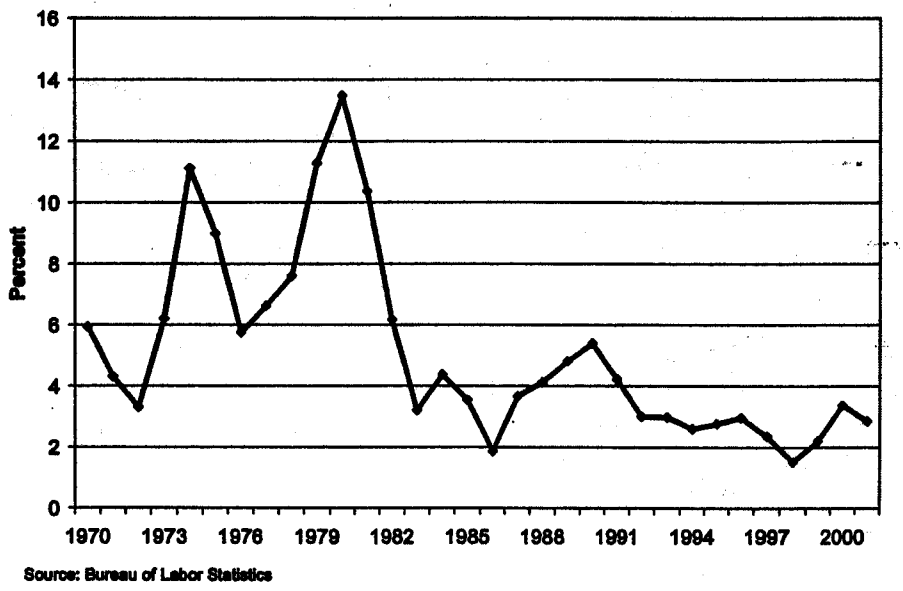
Chart 3. Average US Price of Hops



Source: Price Data from Hop Growers of America and USDA

If hop prices would have strengthened on their own during the period when the marketing order was operating, this not only calls into question the effectiveness of the previous marketing order, but also suggests that the industry sacrificed profits and eroded its competitive position in world markets as a result of the marketing order. The 1970's and early 1980's were characterized by historically high price inflation, exceeding 10% in many years (Chart 4). As a result, prices for most farm commodities—including hops—also increased considerably, much more so than in recent years (throughout most of the last decade) when the general rate of inflation remained at or below 3%. Thus, some of the increase in the price of hops from 1970 to 1985 was likely attributable to general inflationary pressures.

Chart 4. Annual Change in the Consumer Price Index (1970-2001)



Source: Bureau of Labor Statistics

Data from the Hops Administrative Committee also suggests that the market for hops was expanding on its own during much of the 1970's and early 1980's, and was likely undersupplied by the marketing order. The base allotment was set at 59.27 million pounds when the order was established in 1966, but while the saleable was initially set below the base (95%) and was reduced to as low as 77% of the base in 1969, from 1970 until 1984 the saleable quantity was steadily increased. From 1974 through 1984, the saleable quantity matched or exceeded the base allotment (Table 1).

The expansion of the saleable quantity of hops during the time when prices were rising by unprecedented levels is evidence that a strong market for hops existed regardless of the marketing order. Crop failures and insufficient US supply during the second half of the 1970's led to a meteoric rise in the price of hops from about 1977 to 1985, clearly signaling the market to increase production. But the supply controls limited production

to only 130% of the 1966 base allotment, resulting in persistent undersupply, the liquidation of nearly all reserve pool hops, and a market price that could not be sustained over the long run (Chart 5).

Had growers been given the option to produce hops according to their own will, prices likely would still have trended higher throughout the 1970's and early 1980's, reflecting inflationary pressures, global crop failures, and the strong demand that characterized the industry during this period. And, higher production during a period of strong demand could have increased the revenues to the sector above what was achievable while supply controls were in place.

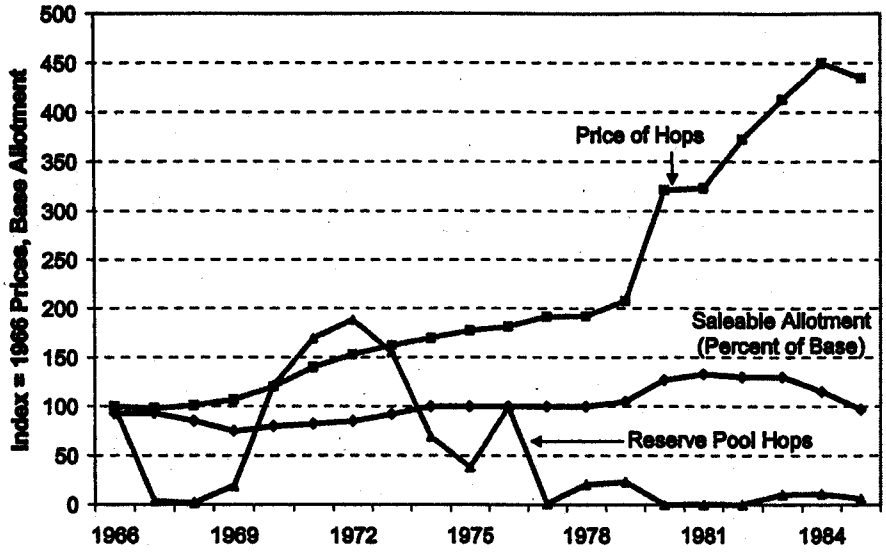
Table 1. Hop Allotment Statistics, 1966-1985

Year	Base Allotment*	Saleable Quantity	Total Allotment
	1,000 lbs	*%*	*1,000 lbs*
1966	59,270	94.8	56,173
1967	59,270	94.1	55,753
1968	59,270	86.9	51,497
1969	59,270	77.7	46,063
1970	59,270	81.3	48,208
1971	59,270	83.7	49,601
1972	59,270	86.7	51,380
1973	59,270	93.7	55,528
1974	60,270	100.0	60,270
1975	60,270	100.0	60,270
1976	60,270	100.0	60,270
1977	60,270	100.0	60,270
1978	60,270	100.0	60,270
1979	60,270	104.9	63,234
1980	60,270	126.7	76,346
1981	60,270	132.3	79,739
1982	60,270	129.8	78,257
1983	60,270	129.8	78,228
1984	60,270	115.0	69,299
1985	60,270	97.3	58,616

* Base allotment increased by 1 million pounds in 1974 to include the Fuggle variety

Source: U.S. Hop Administrative Committee; USDA

Chart 5. Rise in the Price of Hops Under Limited Supply



Source: Computed based on data from U.S. Hops Administrative Committee

Instead, the allotments distorted market signals and pushed prices far above free-market, sustainable levels. As would be expected, these artificially high prices became capitalized into the value of the allotment base, which producers were forced to buy or rent when wanting to respond to market signals by increasing production[1]. This additional cost of expansion was clearly a barrier to new investment in the industry, and was borne inordinately by the producers most willing to invest in their own operation. Eventually, producer lawsuits were filed against USDA for the right to increase output beyond levels mandated by the marketing order, increasing the pressure to end the program altogether. Furthermore, the domestic market distortions likely encouraged investment in production overseas, which along with the increase in acreage that occurred in the US following the lifting of supply controls in 1986 (which would have reflected the distorted market signals), certainly exacerbated the price correction that continued into the early 1990's.

It should also be noted that a primary, stated objective of the marketing order is to "stabilize" hop prices, essentially reducing the degree of price variation over time. But based on a common statistical measure of variability, the price of hops was actually more variable during the tenure of the previous marketing order than after the supply controls were lifted. The coefficient of variation for average US hop prices during the market was 0.54, but it was only 0.09 during the period since 1986 (Chart 3)[2]. This dramatic

[1] There is no publicly available information on the market price of producer allotments during the time when the market order was operating. This largely reflects the fact that sales were privately negotiated, and not subject to official reporting. But it is commonly known that allotments were widely traded among producers and non-producers alike, and at least one grower indicated that it purchased allotments for nearly $0.60/pound in 1978. In comparison, the average price for hops that year was about $0.90. Higher market prices in later years would have certainly increased the cost of the allotment to future buyers.

difference mainly reflects the sharp increase in price due to restricted supplies in the early 1980's, but it nevertheless illustrates the difficulty in pre-judging market needs, and the low likelihood that a new marketing order could lead to more stable prices over the long run. In the end, substantial evidence calls into question whether the previous marketing order served the long-term interest of the hop industry.

Could a Marketing Order Work Today?

The hop industry today faces a far different market situation than it did throughout most of the 1966-86 period, which will make it even more difficult for a marketing order to achieve the desired goal of long-term price stability—let alone higher prices. One of the most important differences is that the market today is alleged to be over supplied, compared with the undersupply situation and rising prices that occurred from the mid 1970's to 1986. As a result, rather than increasing the saleable percentage to supply a growing demand, the Hop Administrative Committee will be faced with requiring a sharp decrease in production by all growers, an unenviable task that will be difficult to achieve in an equitable manner. But aside from this contentious challenge that would lay ahead, characteristics of the market today would further complicate the situation, severely limiting the ability of the market order to achieve its stated goals.

In their justification paper, the Proponent Committee itself notes many of the ways in which the market is different today, albeit without acknowledging that these differences could diminish the effectiveness of the proposed marketing order. However, the reality is that the market today would be much more difficult to control through a marketing order. The most important factors to consider are described below.

The situation today:

- **A global economy offering easier trade and sourcing of goods and services worldwide.** Enhanced global trade means that supply controls instituted in the United States will provide increased incentive for brewers and processors to look to overseas suppliers to fulfill their hop requirements. The higher prices that might result in the United States will simply increase the competitiveness of these foreign imports even after transportation costs are taken into account.

- **Potential loss of alpha production base to China, Central European countries, and other regions.** With production already increasing overseas, including in non-traditional regions, supply controls and higher prices for domestic hops will only encourage investment in these other growing areas. The result will be decreased competitiveness of the domestic hop industry, and a signal to foreign competitors to increase investment in hop production over time.

[2] The coefficient of variation (CV) is a common descriptive statistic used to compare relative variation across two or more variables; in this case, hop prices in two distinct periods. It is computed as the standard deviation divided by the mean.

- **Alpha acid extracts and further processed products are now available that enable prolonged storage of the product.** With easier storage, supply becomes less inelastic. Over time this should decrease the year-to-year variability of prices and reduce the need for forward contracts. But it also makes it much more difficult to raise market prices in the short run by restricting supply. Domestic and foreign producers could work against the intentions of the Hop Administrative Committee by storing product when prices are low, only to sell for higher prices at a later date.

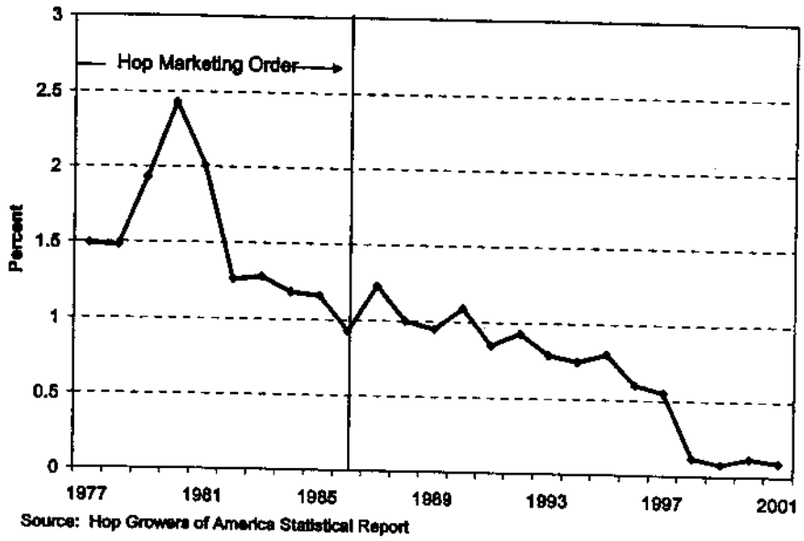
- **Widespread availability of super-high alpha hop varieties enabling higher yields with greater alpha content.** Varieties with greater yields and higher alpha content are adopted because of their ability to increase revenues per acre and decrease costs of production per kilogram of alpha acid produced. Limiting hop production on the basis on alpha content will dramatically reduce the incentive to invest in improved varieties in the United States. But investment in improved varieties overseas would likely increase, since those growers retain the incentive to produce the maximum amount of hops and alpha acid at any market price. Decreased incentive to invest in better varieties in the United States would further erode the competitive position of the domestic industry over time and cause long-term harm to the industry.

- **Internet, e-mail, and increased communications among brewers and grower groups worldwide.** Easier access to information makes it easier for hop buyers to search for alternative sources of supply when markets are artificially restricted. It also decreases the need for a central authority to dictate production decisions, since all growers can more easily monitor market conditions.

These characteristics of the global hop industry today not only will make it much more difficult for a marketing order to achieve its stated objectives, but also increase the risk that supply controls could erode the competitive position of US producers and sacrifice gains achieved over the past 16 years.

The market signals to which producers respond originate with the consumer. Over time, these signals ensure that the proper quantities of product are produced with the characteristics that are most desired. Thus, the trend toward less bitter beers noted by the Proponent Committee should over time be reflected in the price of alpha acid such that supply is in equilibrium with demand. And, brewers' desire to reduce costs in order to sustain consumer demand has been reflected in dramatic improvement in hop quality over time, especially since the demise of the previous marketing order (Chart 6). Imposing restraints at the producer level is certain to distort the incentives to produce the proper quantity and quality of hops in the most efficient manner at the lowest possible cost.

Chart 6. Improvement in Hop Quality Since the End of the Marketing Order: Leaf and Stem Content of US Hops



Source: Hop Growers of America Statistical Report

Artificially shielding an industry from market signals by imposing supply controls always results in a misallocation of resources, ultimately reducing consumer welfare and imposing a "deadweight loss" on society. For instance, incentives to improve domestic hop quality will be less pronounced as buyers are held hostage to the domestic supplies mandated by law. There might also be reduced incentive to experiment with new varieties that could contain taste and aroma characteristics more desirable to consumers. Furthermore, the increase in the price of hops—while only a small proportion of the cost of beer at the retail level—is likely to limit the ability for new firms to enter the brewing industry, since small, upstart breweries almost certainly face higher production costs and tighter margins than large, established brewery conglomerates. The higher price and lower availability of hops on the open market could be the difference between a brewer seeing a profitable opportunity to enter the beer market or choosing to avoid investing in this industry. Clearly, the trend toward brewer consolidation—again noted by the Proponent Committee—could only be enhanced through a marketing order.

Inequitable Transfer of Wealth From Efficient Producers

Perhaps the most pernicious aspect of the proposed marketing order is its likely effect on resource allocation within the hop production industry. As noted throughout this document, the primary mechanism to be employed by this marketing order is strict supply controls imposed on growers. But clearly, such controls are only effective if they restrict production beyond what individual producers would choose in the free market. Producers who are optimistic about future market potential and hope to expand production or invest in higher-yielding varieties will be at the most disadvantage, since they would face a binding constraint on output potential based on historic production patterns. Producers who have not been investing in hop production, on the other hand, could be granted an allotment in excess of what they would likely produce in the free

market. The result would be widespread transfer of hop allotments between growers at a negotiated market price, and a substantial transfer of wealth from optimistic, highly efficient producers to those unwilling or unable to compete in existing markets.

The most discriminatory and resource-misallocating aspects of the marketing order pertain to the allocation of base allotments, and these are described below by examining the actual text of the proposed marketing order. The relevant section regarding initial allotment bases for existing growers is discussed first, followed by a discussion of the provisions regarding allotment adjustments and entry of new growers. Finally, the discriminatory aspects of the proposed marketing order are illustrated using a hypothetical example of two representative hop farms.

Setting the Initial Allotment Base:

§991.53 Allotment Base (Directly From the Proposed Marketing Order)

(a) The Representative Base Period shall be the marketing years 1997, 1998, 1999, 2000, 2001 and 2002; Provided that, a producer must have produced hops in the 2001 and/or 2002 crop year to be eligible to apply for initial allotment base.

(b) Initial Issuance: Each eligible producer desiring an allotment base for hops shall register with the Committee and furnish to it, on forms provided by the Committee, the following:

1. The Actual Production (in number of pounds) of each variety of hops produced during the highest production year of the Representative Base Period and the name of the handler(s) each variety of hops was sold to during that year.

(c) The Initial Allotment Base shall be established by the Committee for each registered producer based on the information submitted by the producer pursuant to 991.53(b), as follows:

1. For each variety over 10% Alpha Acid Percentage, that "Variety Alpha Acid Base" contribution to the total Alpha Acid Allotment Base shall be determined by multiplying the Actual Production by the Actual Alpha Acid Percentage of that variety for the chosen year.

2. For each variety equal to or less than 10% Alpha Acid Percentage, that "Variety Alpha Acid Base" contribution to the total Alpha Acid Allotment Base shall be determined by multiplying the Actual Production of that variety for the chosen year by a flat rate of 10%.

The sum of all of the "Variety Alpha Acid Bases" as calculated above shall be the producer's "Initial Allotment Base."

Explanation: An initial allotment base will be determined for each grower based on his or her highest historic alpha acid production during the years 1997-2002. Historic quantities of alpha acid will be estimated for the representative year by multiplying the production of each variety grown by the actual alpha acid composition for any varieties with over 10% alpha, or by a flat 10% alpha content for any varieties grown with under 10% alpha.

Implications:

- Growers with declining production over time are granted a base allotment in excess of their production trend. Therefore, when the saleable quantity is mandated at the start of the marketing year as a proportion of the allotment base, these growers could be granted the right to sell a quantity of hops in excess of their original market intention.

- Growers that have steadily increased production over time--and who might plan to continue to grow in size—will be granted a base allotment only equal to their highest previous production, and will face a severe restriction in their production decisions if and when the saleable quantity is established as some proportion of the base allotment.

- Growers of high-yielding hops are at an immediate disadvantage, since varieties previously grown that yield less than 10% alpha—*some as low as 3 or 4%*—will contribute to the base allotment calculation on the basis of 10% alpha, but actual alpha content will be used for all varieties yielding more than 10%.

- Base allotments are set according to an historic measure of "alpha acids" produced. But alpha acid content is not consistently or precisely measurable and official records are not compiled, resulting in the possibility of erroneous calculations and significant manipulation.

- The sale, lease, or trade of allotment base from growers with declining production to those hoping to expand is inevitable, resulting in a misallocation of resources and an inappropriate and inequitable transfer of wealth from efficient producers to those unwilling or unable to compete in the market. Incentives for investment in new varieties or improved production techniques are dramatically reduced across the industry.

- The marketing order considers production in years 1997-2002, so growers who entered the industry in 2003 would be forced out due to lack of appropriate production history, and those who expanded in 2003 would not have their most recent production count toward their allotment.

Adjustments to the Allotment Base and Entry of New Growers:

§991.53 Allotment Base (continued; Directly From Proposed Marketing Order)

(d) Adjustment to allotment base.

Periodically, but at least once every five years, the Committee shall review and may adjust each producer's allotment base to recognize changes and trends in production and demand. Any such adjustment shall be made in accordance with a formula prescribed by the Committee with the approval of the Secretary.

1. The Committee annually shall make additional allotment bases available in the amount of no more than 1 percent of the total allotment base. Fifty percent of these additional allotment bases shall be made available for new producers and 50 percent made available for existing producers; Provided that, in any year in which the current salable percentage is equal to or less than the previous year's salable percentage, the Committee shall not be required to make additional base available for the ensuing marketing year.

2. Any person may apply for an additional allotment base by filing an application with the Committee on or before December 1 of the marketing year preceding the marketing year for which the additional allotment bases will be made available.

Explanation: Growers can expect the possibility of changes to the allotment base only once every five years, based on a Committee review of their historic production patterns. The formula to be used in making adjustments for individual producers is not defined. New allotments will be made available beginning in the 2005-06 marketing year, but only in the amount of 1% of the historic allotment (50% of which will be available to existing producers), and only in the event that the saleable percentage has increased in the previous year.

Implications:

- Severe restriction of new entrants to the industry. Allotments available to new growers—if granted—would only equal 0.5% of the existing allotment base, an amount that is likely too small for a new grower to enter the industry at or near the minimum efficient scale of production. Even if a new grower did enter at this scale, he or she could be restricted from obtaining additional base for up to five years.

- Existing growers hoping to obtain additional base would be subject to the whims of the committee and potential conflicts of interest, and would also have had to invest in the purchase or lease of additional base in previous years in order to demonstrate an increasing production trend.

Determining the Industry Base and Setting the Saleable: What can we expect?

It is clear that the marketing order proposal, as it currently stands, will result in an initial industry base that far exceeds the historic production of alpha in the United States. The facts that lead to this conclusion include:

- Hop production has trended lower over time
- Alpha acid from aroma hops averages about 6% or less, but allotment assignment assumes 10%, and aroma hop production (as proportion of total) is trending lower
- All growers will choose their highest alpha production during 1997-2002; *taking into account the aroma hop premium*

There are no statistics available that report actual alpha production for each grower. However, historic estimates of industry-wide "alpha base" (considering the flat 10% alpha granted to low-alpha aroma varieties) can be estimated based on:[3]

1.) Published estimates of total US industry hop production since 1997;
2.) Estimates of US acreage of bitter and aroma hops;
3.) An assumed yield of 1500 lbs/acre for aroma hops, and
4.) Estimates that the average alpha content for bitter hops has increased from 12.5% in 1997 to 13% in 2002

Using the data identified above, estimates of the industry-wide alpha base range from just over 8.7 million pounds in 1997, to just over 7.0 million pounds in 2002 and 1998 (the data used to calculate these estimates is provided in the appendix to this report). Hence, the "lower bound" for industry alpha base is 8.7 million pounds (the estimated base for 1997), assuming all growers choose their highest historic alpha production to set their initial base quantity (chart 7).

However, considering that some producers have expanded production since 1997 and will choose later years from which to calculate their base, it is not unreasonable to assume that the actual industry base will exceed the "lower bound" by some amount. We have no way of knowing beforehand what that amount will be, so to be conservative we assume 5%, which brings the industry base to 9.2 million pounds.

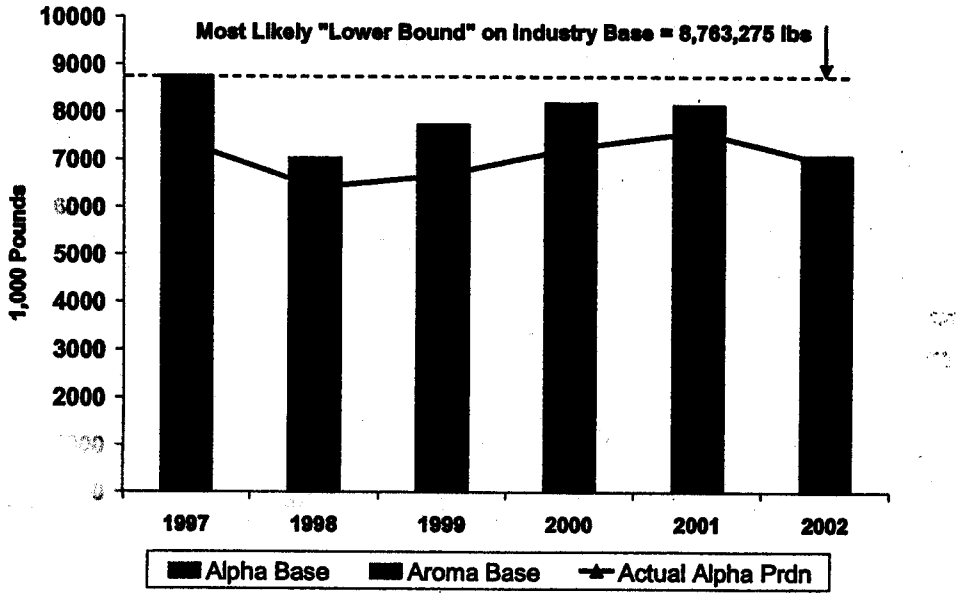
The actual US alpha production in 2002 is estimated by the *Hop Growers of America* at 6.9 million lbs, with the average production from 1997-2002 at about 7.0 million lbs. As a result, it is clear that the saleable quantity must be set at 75% ***just to equal 2002 alpha production!*** This saleable, of course, would imply no actual reduction in supply, just simply a redistribution of saleable quantity across growers.

The actual saleable would not be determined until after a Hop Administrative Committee has time to review all data and perform an analysis, but if the intent of the marketing order is to decrease the level of hop stocks held by farmers, a reduction in the saleable

[3] All of these conditions are derived from industry statistics published annually by the Hop Growers of America

well below 75% would be necessary. Considering that USDA estimated September 2003 stocks held by dealers/growers at 34 million pounds, compared with 16 million pounds in 2001, if we assume that all existing stocks have an average alpha composition of 10%, alpha stocks would have to be reduced by 1.8 million pounds in 2004 (the assumed first year of the marketing order) to return stocks to 2001 levels. With 2002 alpha production of 6.9 million pounds, and assuming that industry demand, import and export characteristics have not changed since 2001, implies that "industry needs" the year following enactment of the marketing order would be 5.1 million pounds. With an industry base of 9.2 million pounds, industry needs of 5.1 million pounds requires a saleable percentage of 55.4%.

Chart 7. Estimates of Industry-Wide Alpha Base



Discriminating Against Efficient Producers and Innovators: A Hypothetical Example

The discriminatory nature of the proposed marketing order can be demonstrated by illustrating the implications for two hypothetical farms: one that is decreasing production and slowly exiting the industry, and another that is investing in improved varieties and expanding output over time. Consider two farms, each with 750 acres of hops in 2001:

Characteristics of Hypothetical Farm 1:

- Decreasing acreage over time, from 1000 acres in 1997 to 650 acres in 2002
- Variety = 100% Cluster, with no investment in improved varieties over time.
- Alpha = 8%, with yield steady at 1870 lbs/acre.
- Alpha production decreasing over time:

Farm 1: Acreage and Alpha Production, 1997-2002 and 2003

Year	Acreage	Alpha Production (lbs)
1997	1000	149,600
1998	900	134,640
1999	850	127,160
2000	800	119,680
2001	750	112,200
2002	650	97,250
*2003**	*550*	*82,280*

* 2002 production not considered when setting base allotments

- Alpha production continued to decline in 2003 (consistent with 1997-2002 trend), but this information is not used in setting the base allotment.

Characteristics of Hypothetical Farm 2:

- Increasing acreage over time, from 500 acres in 1997 to 800 acres in 2002
- Variety = 100% Cluster in 1997, but investing in improved varieties (e.g. Columbus/Tomahawk, Zeus) over time. Nearly 100% improved variety by 2002.
- Average alpha = 8% in 1997, improving to 15% in 2002, with yield improving from 1870 lbs/acre in 1997 to 2600 lbs/acre in 2002.
- Alpha production increasing over time:

Farm 2: Acreage and Alpha Production, 1997-2002 and 2003

Year	Acreage	Alpha (%)	Alpha Production (lbs)
1997	500	8%	74,800
1998	550	9%	99,000
1999	600	10%	126,000
2000	650	12%	179,400
2001	750	14%	252,000
2002	800	15%	300,000
*2003**	*850*	*16%*	*353,600*

* 2002 production not considered when setting base allotments

- Alpha production continued to increase in 2003 (consistent with 1997-2002 trend), but this information will not be used in setting the base allotment.

Discussion: Farm 1 is clearly decreasing output over time, by removing acreage from hop production and making no new investment in improved varieties. Thus, output has been declining since at least 1997. This production pattern would be characteristic of a farm that sees a limited future in hop production, and has therefore chosen to avoid the risks associated with investment in new varieties or other technologies that might increase output. This farm might be expected to continue to decrease output over time; at least until market conditions improve enough to justify new investment in hop production. The decreased acreage could either reflect a decision to stop farming

altogether, or to switch to another crop that is believed to provide higher returns with lower risks.

Farm 2, on the other hand, has chosen to accept the inherent risk of hop production, and has invested in both increased acreage and replacing existing acreage with improved, high yielding hop varieties. The greater yield and alpha production per acre as a result of the risky investment has likely resulted in lower unit costs of production over time, and greater market returns. Of course, revenue is still determined largely by market price, and this producer might have experienced some losses in the short run in the hope of higher returns in the future resulting from its greater output and lower costs of production. The increased acreage and investment clearly reflect an optimistic view toward the hop market in the future, or a belief that few other crops can provide equivalent returns.

In a free market economy, investment risks tend to be rewarded by higher market returns to compensate for the higher likelihood of failure. Thus, Farm 2 would be expected to reap the greater rewards if and when market prices increase, and the likelihood of failure and possible foreclosure would reflect the risk that prices do not recover, or continue to decline. But Farm 2 has chosen to accept these risks and made a conscious decision to invest in its operation.

Implications of the Marketing Order for Different Types of Farms

The proposed marketing order would have the perverse effect of rewarding the more risk-averse Farm 1, while punishing Farm 2 for taking on additional risk. Consider the following:

- Base allotments are allocated based on the farms' *highest production during years 1997-2002*. Thus, Farm 1 would get an allotment based on its 1997 acreage.

- Allotments based on alpha production will consider the **actual** alpha acid composition for each variety over 10%, but varieties under 10% *shall be determined by multiplying the actual production of that variety for the chosen year by a flat rate of 10%.*

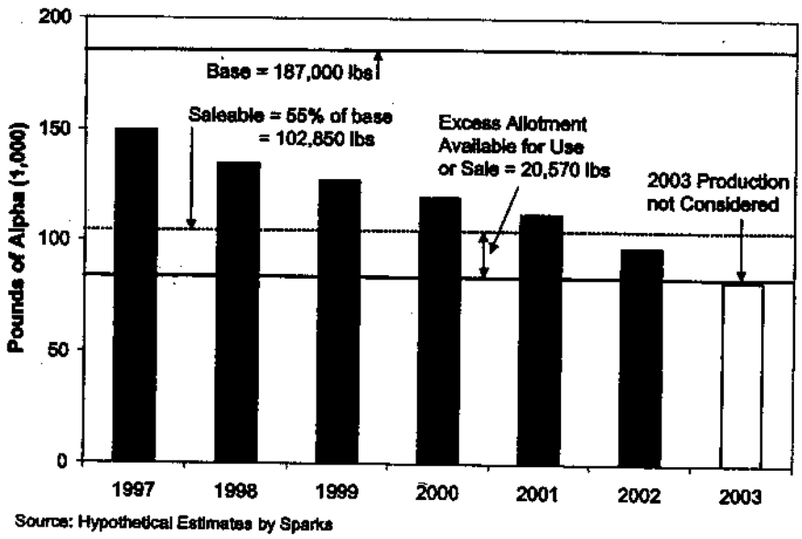
- Despite the fact that Farm 1 has shown a steady decline in acreage, and has maintained production of a variety that averages only 8% alpha acid, this farm will be rewarded with a base allotment of 187,000 lbs (1000 acres × 1870 lbs/acre × 10% alpha acid), more than 20% higher than its highest year of production, and 92% higher than its alpha production in 2002.

- Despite the fact that Farm 2 has been actively investing in hop production since 1997, its base allotment will be 300,000 lbs, equal to its output in 2002.

- Production in 2003 is ignored for both farms, enhancing the reward to farms that have shown a downward trend in production (e.g. Farm 1), and amplifying the punishment to any farm that has recently increased production (e.g. Farm 2).

A basic provision of the marketing order is the ability to limit the saleable amount to some percentage of the base allotment. If we assume that in the first year (2004) of operation the Hop Administrative Committee sets the saleable percentage at 55% (based on calculations provide above) of the base in order to decrease market supply, the result would mean that that Farm 1 would be granted the right to sell 102,850 lbs of alpha, and 25% more than was sold in 2003 (Chart 8).

Chart 8. Excess Allotment Available to Farms that have Decreased Production Over Time (Farm 1)



Source: Hypothetical Estimates by Sparks

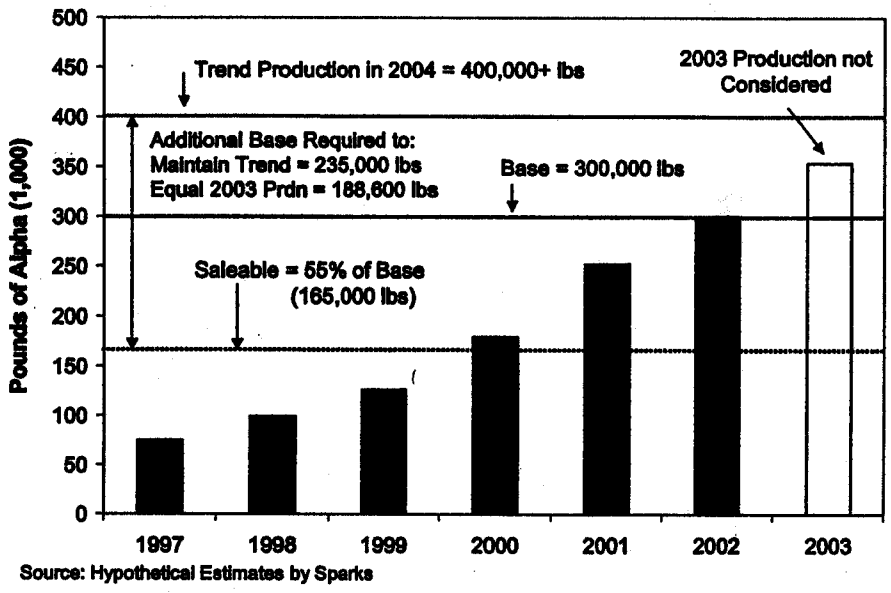
On the other hand, Farm 2 would have the amount that it could sell limited to 165,000 lbs, 45% less than it sold in 2002, 53% less than the 353,600 lbs it sold in 2003, and 59% less than the 400,000 lbs it might have expected to sell in 2004 based on a conservative estimate of historic production trends (Chart 9). Thus, Farm 2 finds itself severely constrained in the amount of hops it can sell—regardless of the investment made over previous years—while Farm 1 is rewarded with excess allotment far beyond that amount it would normally be expected to produce in 2003.

The result is easily predictable: Farm 2 will either be forced to curtail production (perhaps by not harvesting some hops), or purchase additional allotment base from a grower choosing not to produce the amount allocated to it—perhaps from Farm 1. In either case, Farm 2 is clearly punished by its previous decision to invest in greater output and lower costs of production, while Farm 1 is rewarded with the option of either

increasing its production or selling its excess allotment on the open market. Of course, considering that allotment base will take on some positive value in the market reflecting its production potential, it might not even be financially feasible for Farm 2 to acquire base sufficient to meet historic production potential—or even its contractual obligations already in place. Such a situation could force this efficient producer into financial ruin.

While the advocates of the proposed marketing order point to its "no net cost" to the government, in fact the costs of the marketing order will be paid directly by the industry's most efficient producers, by transferring wealth from the producers willing to take on additional risks, to the risk-averse producers unwilling or unable to invest in more efficient production and greater output.

Chart 9. Insufficient Allotment Available to Growers that have Invested in Better Varieties and Increased Output (Farm 2)



Source: Hypothetical Estimates by Sparks

Could this transfer of wealth be what the marketing order proponents desire when they refer to the lack of an "exit strategy" for growers wanting to reduce acreage or leave the industry altogether? Since allotment base is certain to take on an economic value regardless of any "bona-fide effort clause", some growers might see a profitable opportunity in selling allotment rather than producing and marketing hops. But the inequity of such an exit strategy is readily apparent, as it extorts payment from producers hoping to expand in order to fund a "buyout" of producers wanting to exit.

Summary and Conclusions

The hop and brewing industries have experienced tremendous technological breakthroughs in recent years. New technology at the hop processor and brewer level has improved utilization, while more efficient hop varieties have reduced production costs and increased supply. As the markets adjust to the changes occurring, low prices have

caused financial hardship for some producers, limiting their ability to invest in new equipment or earn a comfortable living from growing hops. But while the pressures on many producers are real, a hop marketing order would have limited ability to alleviate them, and it would certainly sacrifice the long-term viability of the hop industry and the competitive advantage that it currently enjoys in global markets.

Marketing orders have long been controversial tools of agricultural policy, but economists and many policy makers view those based on supply controls and producer allotments with the greatest animosity. History has repeatedly shown that efforts to "manage" the supply of an entire industry are fraught with unintended and adverse consequences, and impose burdensome costs on the industry and consumers. And, experience with the previous hop marketing order shows that the allure of these programs can quickly turn to aversion when markets change and the constraints imposed are most pronounced.

Markets must be allowed to freely adjust to changing conditions. The technological breakthroughs that have reduced costs, increased supply, improved product storability, and enhanced the competitiveness of the domestic hop industry should not be viewed as reason to impose constraints on growers in an effort to shield them from market forces. The result would be to sacrifice the industry's long-term potential for short-term gains available to some.

At the very least, allotments in the United States will provide a clear signal to producers in foreign countries to increase their supply, and buyers worldwide will respond by turning to these competitors to fill their needs. There will be a chilling effect on investment by domestic producers, and a steady erosion of the competitive position of the domestic industry. And, the sale and trade of allotments will again be commonplace, resulting in inequitable transfers of wealth away from the most efficient segments of the industry. Such a system is sure to doom the domestic hop industry to a downward spiral of decreasing investment, reduced supplies, and lost markets.

Appendix: Estimating the Industry Base Using Available Data

Step 1: Historic Hop Acreage:

Year	Total	Aroma	Alpha
		Acres	
1997	43,302	15,886	27,416
1998	36,643	12,015	24,628
1999	34,260	10,928	23,332
2000	36,120	10,807	25,313
2001	35,911	10,756	25,155
2002	29,309	10,931	18,378
Information source:	*USDA*	*IHGC*	*= Total – Aroma*

Step 2: Hop Production (Alpha and Aroma) Pounds:

Year	Total	Aroma	Alpha
		Pounds of Hops	
1997	74,872,000	23,829,000	51,043,000
1998	59,549,800	18,022,500	41,527,300
1999	64,455,000	16,392,000	48,063,000
2000	67,576,800	16,210,500	51,366,300
2001	66,832,100	16,134,000	50,698,100
2002	58,336,600	16,396,500	41,940,100
Information source:	*HGA*	*= Aroma acres × 1500lbs/acre*	*= Total production – aroma production*

Step 3: Calculated Industry-Wide Alpha Base:

Year	Alpha from aroma hops	Average alpha in alpha hops	Alpha from alpha hops	**Estimated Total Alpha Base**
	Lbs	**Percent**	*Lbs*	*Lbs*
1997	2,382,900	12.5	6,380,375	**8,763,275**
1998	1,802,250	12.6	5,232,439	**7,034,689**
1999	1,639,200	12.7	6,104,001	**7,743,201**
2000	1,621,050	12.8	6,574,886	**8,195,936**
2001	1,613,400	12.9	6,540,054	**8,153,454**
2002	1,639,650	13.0	5,452,213	**7,091,863**
Information source:	*= Aroma production × 10%*	*Based on HGA data*	*= Alpha hops (lbs) × average alpha*	*Aroma + Alpha*